Trend Study 4-2-01

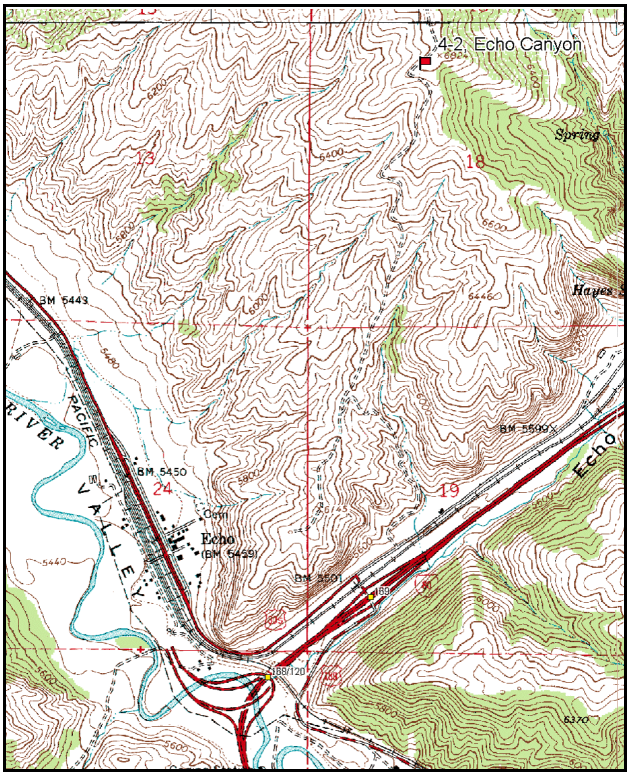
Study site name: Echo Canyon . Vegetation type: Big Sagebrush-Grass .

Compass bearing: frequency baseline 92 degrees magnetic.

Frequency belt placement: Line 1 (11ft), line 2 (34ft), line 3 (95ft), line 4 (59ft), line 5 (71ft).

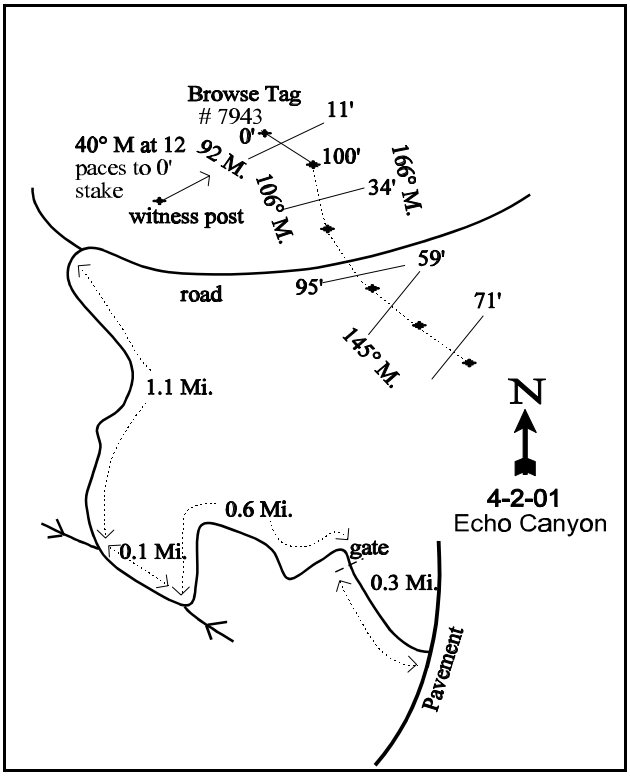
LOCATION DESCRIPTION

From I-80 exit 169, just east of the I-80/I-84 junction, travel northeast towards Emery 0.1 miles, and turn left onto a dirt road. Proceed up the mountain 0.7 miles (passing through locked DWR gate) to a fork, and turn right. Proceed north 1.1 miles to a fork in the road and stop. From this point, walk 12 paces at 40 degrees magnetic to the witness post. The 0-foot baseline stake is 18 paces at 40 degrees magnetic from the witness post. The 0-foot baseline stake is marked by browse tag #7943. The baseline doglegs along the hillside. Line 1 runs 92 degrees magnetic. Line 2 runs 106 degrees magnetic. Line three runs 166 degrees magnetic. Lines 4 and 5 run 145 degrees magnetic.



Map Name: Coalville

Township 3N , Range 5E , Section 18



Diagrammatic Sketch

UTM 4538406 N 464007 E

DISCUSSION

Trend Study No. 4-2 (6-2)

The Echo Canyon study samples critical deer winter range located approximately one mile north of Echo Junction. The study site is dominated by a moderately dense but heavily browsed stand of mountain big sagebrush. Elk do not normally use this site, but did during 1983-84 because of the severe winter conditions. Physically, the study site is on a steep (40%) southwest slope with an elevation of 6,560 feet. Pellet group quadrat frequency was equal for deer and elk in 1996 at 17%. Sign of cattle use was also found on the area during the 1996 reading. Pellet group data from the site in 2001, estimated 50 deer days use/acre (124 ddu/ha). Elk and cattle use was low at 6 elk days use/acre (15 edu/ha) and 5 cow days use/acre (13 cdu/ha).

Soil parent material is a conglomerate, which breaks down into a gravelly soil of moderately shallow depth. Rock cobble is abundant on the surface and throughout the profile. The soil appears excessively drained and probably holds little available water in mid-summer. Soil texture is a sandy clay loam with a neutral soil reaction (pH of 7.0). Effective rooting depth is estimated at over 10 inches. Vegetation and litter cover are sufficient to protect the soil from serious erosion. The erosion condition class was determined to be slight in 2001.

Browse forage comes almost exclusively from mountain big sagebrush which accounts for over 90% of the browse cover. Sagebrush density was estimated at nearly 6,000 plants/acre in 1984. That number declined to just under 3,000 plants/acre in 1990. Utilization was extremely heavy in 1984 with 76% of the sagebrush displaying heavy use. Utilization was heavy on only 23% of the sagebrush in 1990, but percent decadence increased from 29% to 64%. Density remained similar in 1996 at 3,300 plants/acre and 2,780 in 2001. Use is normally moderate, vigor normal on most plants, and percent decadence moderate. Percent decadence declined to 19% in 1996, then rose to 31% in 2001. Annual leader growth, measured in 2001, averaged less than 2 inches (1.7").

The only other common shrub consists of broom snakeweed which numbered 1,540 plants/acre in 2001. The primary danger to this site is wildfire. A moderately dense understory of cheatgrass brome has demonstrated the capability to carry fire in this area. Nearby fires have consumed and virtually eliminated sagebrush on thousands of acres.

Perennial grasses and forbs provide relatively minor amounts of forage and ground cover. Only bluebunch wheatgrass is productive enough to be a significant forage producer. Sandberg bluegrass is also abundant but produces limited forage. Photographs taken from 1984 show an apparent increase in cheatgrass. However, annuals were not included quantitatively with the 1984 and 1990 samples. It accounted for 56% of the grass cover in 1996, but declined to 17% in 2001 because of the dry year. Other relatively common perennial grasses include bulbous bluegrass and Sandberg bluegrass. Forbs are diverse and fairly abundant. However, annual species account for over half of the forb cover. Common perennial forb species include Louisiana sage, three species of milkvetch, and silvery lupine.

1984 APPARENT TREND ASSESSMENT

Soil conditions appear stable. Past erosion has produced a soil surface relatively resistant to further erosion. Extreme rockiness, erosion pavement, and shrub cover all act to minimize erosion. Vegetative trend also appears stable. Mountain big sagebrush is the dominant browse which appears to be a stable. However, the herbaceous understory is depleted, with an excess of annual weeds posing an increased fire hazard.

1990 TREND ASSESSMENT

The soil trend has improved. Percent bare ground has declined from almost 12% to only 4%. Litter cover has also increased, while basal vegetative cover has increased dramatically. The mountain big sagebrush population declined 51% in number since 1984. Percent decadency has also increased from 29% to 64%. But, there was a large number of seedlings found in 1990, almost 2,000 seedlings per acre. There was actually more seedlings than decadent plants. The sagebrush show mostly moderate and some heavy hedging, yet display generally good vigor. Sagebrush canopy cover is estimated at 15%. While the understory remains dominated by cheatgrass, the sum of nested frequency for bluebunch wheatgrass increased significantly. Annual grasses provide the bulk of the vegetative and litter cover. Nested frequency of perennial forbs have declined. The site appears to have supported increased elk winter use in recent years.

TREND ASSESSMENT
soil - up (5)
browse - down (1)
herbaceous understory - stable (3)

1996 TREND ASSESSMENT

Trend for the soil is stable. Percent bare ground has remained low at around 3% while litter cover continues to be high at 59%. Unfortunately, most of the vegetation and litter cover comes from the dense stand of annual cheatgrass. Erosion does not appear to be a major problem at this time. Trend for mountain big sagebrush is up. Sagebrush density has remained comparable, yet utilization is lighter, percent decadence lower, and vigor improved. Few seedlings were encountered in 1996, but young plants are fairly numerous. Trend for the herbaceous understory is also up. Sum of nested frequency for perennial grasses and forbs has increased. However, composition is still poor as cheatgrass currently accounts for 56% of the grass cover and annual forbs provide 62% of the forb cover.

TREND ASSESSMENT
soil - stable (3)
browse - up (5)
herbaceous understory - up but understory still dominated by annuals (5)

2001 TREND ASSESSMENT

Trend for soil is down slightly. Percent cover of bare ground increased from 3% to 9%, while litter cover declined. Some of the change is due to the decline in frequency and cover of cheatgrass which has dropped in cover from 14% to only 4%. Vegetation cover has remained similar, but due to the decline in litter cover, the ratio of protective ground cover to bare ground has declined by 38%. The erosion condition class was determined to be slight. Trend for the key browse species, mountain big sagebrush, is down slightly. Density has declined 16%, young recruitment is non existent, and percent decadence has increased from 19% in 1996 to 31% in 2001. Utilization is light to moderate, with normal vigor on most plants. The current trend is most likely driven by the dry conditions of the past 3 years (1999-2001). Trend for the herbaceous understory is up for perennial grasses but down for perennial forbs. The improvement in the grass component is primarily due to a significant decline in the nested frequency of the annual cheatgrass and a significant increase in the frequency of Sandberg bluegrass. Nested frequency of the low value perennial, bulbous bluegrass, also increased significantly. Since perennial grasses provide two thirds of the herbaceous cover, the overall herbaceous trend is considered slightly up.

TREND ASSESSMENT
soil - down slightly (2)
browse - down slightly (2)
herbaceous understory - up slightly (4)

HERBACEOUS TRENDS --
Herd unit 04 , Study no: 2

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron spicatum	a125	b179	b182	b184	56	70	69	68	7.53	7.38
G	Bromus japonicus (a)	-	-	a16	b33	-	-	6	13	.08	.36
G	Bromus tectorum (a)	-	-	b330	a169	-	-	91	59	13.71	4.04
G	Poa bulbosa	a-	a-	b58	c85	-	-	20	35	1.31	2.56
G	Poa fendleriana	-	-	6	3	-	-	2	1	.01	.03
G	Poa pratensis	7	17	10	17	4	9	5	6	.12	.66
G	Poa secunda	a20	a22	b83	c169	8	11	30	56	1.81	7.96
G	Sitanion hystrix	-	-	1	-	-	-	1	-	.00	-
G	Sporobolus cryptandrus	-	-	4	8	-	-	2	4	.03	.07
G	Stipa lettermani	-	-	-	7	-	-	-	2	-	.06
Total for Annual Grasses		0	0	346	202	0	0	97	72	13.79	4.40
Total for Perennial Grasses		152	218	344	473	68	90	129	172	10.82	18.72
Total for Grasses		152	218	690	675	68	90	226	244	24.62	23.13
F	Achillea millefolium	-	2	4	4	-	1	2	2	.01	.01
F	Agoseris glauca	6	9	6	13	3	5	2	5	.01	.10
F	Allium acuminatum	c145	a6	a-	b21	60	3	-	11	-	.11
F	Alyssum alyssoides (a)	-	-	199	167	-	-	67	65	5.09	1.06
F	Ambrosia psilostachya	-	-	-	-	-	-	-	-	-	.00
F	Antennaria rosea	-	-	-	3	-	-	-	2	-	.03
F	Artemisia ludoviciana	bc45	c65	a19	ab26	19	23	6	8	1.32	1.85
F	Astragalus beckwithii	-	-	9	9	-	-	3	3	.07	.24
F	Astragalus cibarius	c163	a-	b15	b22	67	-	9	10	.09	.34
F	Astragalus utahensis	a6	a5	c75	b39	4	2	35	19	1.76	1.37
F	Castilleja linariaefolia	-	-	2	4	-	-	1	2	.00	.04
F	Camelina microcarpa (a)	-	-	-	8	-	-	-	4	-	.07
F	Calochortus nuttallii	1	-	1	6	1	-	1	3	.00	.02
F	Cirsium undulatum	6	17	13	5	3	7	7	3	.29	.18
F	Collomia linearis (a)	-	-	a14	b39	-	-	7	17	.04	.18
F	Collinsia parviflora (a)	-	-	a22	b97	-	-	9	35	.07	.72
F	Crepis acuminata	-	-	1	2	-	-	1	1	.00	.00

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Cymopterus spp.	$_{A}$-	$_{a}$-	$_{a}$-	$_{b}$13	-	-	-	7	-	.06
F	Descurainia pinnata (a)	-	-	-	3	-	-	-	2	-	.01
F	Draba spp. (a)	-	-	106	93	-	-	38	34	.31	.24
F	Epilobium brachycarpum (a)	-	-	$_{a}$-	$_{b}$10	-	-	-	5	-	.02
F	Erodium cicutarium (a)	-	-	$_{b}$97	$_{a}$57	-	-	32	20	2.56	2.00
F	Erigeron pumilus	-	-	-	3	-	-	-	1	-	.00
F	Eriogonum umbellatum	-	-	-	2	-	-	-	1	-	.00
F	Galium spp.	-	-	$_{b}$14	$_{a}$2	-	-	7	1	.08	.00
F	Grindelia squarrosa	$_{a}$-	$_{a}$-	$_{b}$22	$_{b}$10	-	-	10	5	.10	.34
F	Heterotheca villosa	-	1	3	2	-	1	1	1	.00	.15
F	Holosteum umbellatum (a)	-	-	$_{b}$239	$_{a}$106	-	-	78	37	1.67	.66
F	Lactuca serriola	-	-	3	-	-	-	2	-	.01	-
F	Lomatium spp.	$_{a}$-	$_{a}$3	$_{b}$28	$_{ab}$19	-	3	14	7	.09	.14
F	Lupinus argenteus	$_{a}$1	$_{a}$3	$_{b}$25	$_{b}$31	1	3	13	16	.97	1.37
F	Machaeranthera spp	$_{a}$-	$_{a}$-	$_{b}$42	$_{a}$-	-	-	20	-	.10	-
F	Microsteris gracilis (a)	-	-	$_{a}$-	$_{b}$22	-	-	-	10	-	.05
F	Penstemon spp.	$_{B}$19	$_{a}$-	$_{a}$-	$_{a}$-	9	-	-	-	-	-
F	Ranunculus testiculatus (a)	-	-	$_{a}$24	$_{b}$53	-	-	10	19	.10	.53
F	Senecio integerrimus	-	-	-	2	-	-	-	1	-	.00
F	Sphaeralcea grossulariaefolia	-	-	4	-	-	-	2	-	.18	-
F	Taraxacum officinale	-	-	-	2	-	-	-	1	-	.00
F	Tragopogon dubius	$_{a}$-	$_{bc}$35	$_{c}$61	$_{b}$31	-	18	26	16	.37	.49
F	Veronica biloba (a)	-	-	-	1	-	-	-	1	-	.00
F	Verbascum thapsus	-	-	-	4	-	-	-	2	-	.01
F	Vicia americana	$_{a}$-	$_{a}$10	$_{c}$63	$_{b}$36	-	4	25	15	.57	.36
F	Zigadenus paniculatus	-	1	-	-	-	1	-	-	-	-
Total for Annual Forbs		0	0	701	656	0	0	241	249	9.86	5.57
Total for Perennial Forbs		392	157	410	311	167	71	187	143	6.07	7.27
Total for Forbs		392	157	1111	967	167	71	428	392	15.94	12.85

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 04 , Study no: 2

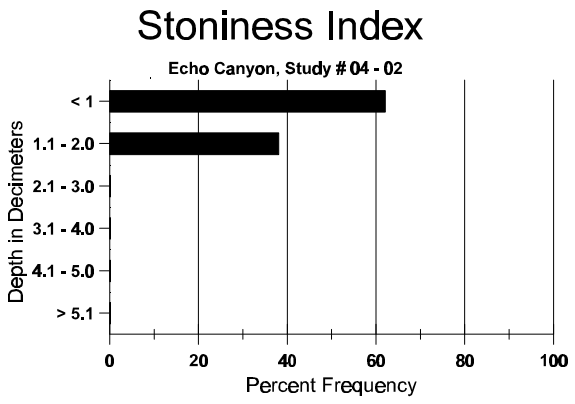
Type	Species	Strip Frequency '96	Strip Frequency '01	Average Cover % '96	Average Cover % '01
B	Artemisia tridentata vaseyana	75	77	14.32	15.01
B	Chrysothamnus nauseosus albicaulis	4	1	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	4	2	.45	.53
B	Gutierrezia sarothrae	20	34	.29	.90
B	Opuntia spp.	6	6	-	-
B	Symphoricarpos oreophilus	4	5	.18	.04
Total for Browse		113	125	15.25	16.48

BASIC COVER --
Herd unit 04 , Study no: 2

Cover Type	Nested Frequency '96	Nested Frequency '01	Average Cover % '84	Average Cover % '90	Average Cover % '96	Average Cover % '01
Vegetation	387	369	2.50	10.50	49.46	50.97
Rock	254	244	23.00	13.50	9.88	11.98
Pavement	219	268	13.25	9.25	6.84	11.67
Litter	394	356	49.75	63.00	59.37	43.15
Cryptogams	16	22	0	0	.03	.10
Bare Ground	137	207	11.50	3.75	2.89	9.38

SOIL ANALYSIS DATA --
Herd Unit 04, Study no: 02, Echo Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
10.5	47.4 (10.6)	7.0	46.7	27.0	26.3	3.1	25.9	192.0	.7



PELLET GROUP FREQUENCY --
Herd unit 04 , Study no: 2

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'96	'01	'01	'01
Elk	17	1	78	6 (15)
Deer	17	29	653	50 (124)
Cattle	2	1	61	5 (13)

BROWSE CHARACTERISTICS --
Herd unit 04 , Study no: 2

AGE	YR	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Amelanchier alnifolia																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	32	29	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	34	37	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	0	Dec:		-
'90	0			-
'96	0			-
'01	0			-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	84	4	-	-	-	-	-	-	-	-	4	-	-	-	266			4
	90	29	-	-	-	-	-	-	-	-	29	-	-	-	1933			29
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
Y	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	27	-	-	-	-	-	-	-	-	27	-	-	-	540			27
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	18	45	-	-	-	-	-	-	63	-	-	-	4200	26	35	63
	90	1	10	5	-	-	-	-	-	-	16	-	-	-	1066	26	35	16
	96	41	61	4	-	-	-	-	-	-	105	-	1	-	2120	18	37	106
	01	33	53	10	-	-	-	-	-	-	94	2	-	-	1920	23	44	96
D	84	-	3	23	-	-	-	-	-	-	26	-	-	-	1733			26
	90	4	19	5	-	-	-	-	-	-	25	-	-	3	1866			28
	96	17	12	3	-	-	-	-	-	-	31	-	-	1	640			32
	01	16	20	7	-	-	-	-	-	-	30	-	3	10	860			43
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	860			43
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	320			16

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	23%	76%	00%	-51%
'90	66%	23%	07%	+11%
'96	44%	04%	01%	-16%
'01	53%	12%	09%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	5999	Dec:	29%
	'90	2932		64%
	'96	3300		19%
	'01	2780		31%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus albicaulis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	4	-	-	-	-	-	-	-	-	4	-	-	-	80	18	30	4
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	29	41	1
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	-75%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	0	Dec:	-
	'90	0		-
	'96	80		-
	'01	20		-

Chrysothamnus viscidiflorus viscidiflorus																		
M	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66	7	9	1
	90	-	-	-	1	-	-	-	-	-	-	-	1	-	66	9	20	1
	96	3	-	-	1	-	-	-	-	-	4	-	-	-	80	12	22	4
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40	10	19	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	+ 0%
'90	00%	00%	100%	+18%
'96	00%	00%	00%	-50%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'84	66	Dec:	-
	'90	66		-
	'96	80		-
	'01	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	49	-	-	-	-	-	-	-	-	49	-	-	-	980			49
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	26	-	-	-	-	-	-	-	-	26	-	-	-	520			26
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	41	-	-	-	-	-	-	-	-	41	-	-	-	820	8	11	41
	01	70	-	-	-	-	-	-	-	-	70	-	-	-	1400	7	9	70
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	5	-	-	-	-	-	-	-	-	3	-	-	2	100			5
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	80			4

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	+13%
'01	00%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
'84	0	Dec:		0%
'90	0			0%
'96	1340			0%
'01	1540			6%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Opuntia spp.																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	11	-	-	-	-	-	-	-	-	11	-	-	-	220	6	12	11
	01	10	1	-	-	-	-	-	-	-	8	-	-	3	220	4	10	11

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	+ 8%
'01	08%	00%	23%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'84	0		-
	'90	0		-
	'96	240		-
	'01	260		-

Symphoricarpos oreophilus																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20	25	25	1
	01	4	-	-	-	-	-	2	-	-	6	-	-	-	120	16	22	6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'84	00%	00%	00%	
'90	00%	00%	00%	
'96	00%	00%	00%	+33%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'84	0		-
	'90	0		-
	'96	80		-
	'01	120		-